

**CLAIMS**

1. A rotary disc pump for pumping fluid materials, comprising:
  - a housing having a front and a back wall forming a chamber with a generally coaxial inlet in said front wall and a generally tangential outlet;
  - an impeller mounted co-axially within said chamber and comprising a shaft mounted in said back wall of said housing and having an outer end extending from said housing and an inner end within said chamber, at least a first circular disc mounted on the inner end of said shaft, and at least a second disc mounted in axially spaced relation to said first disc and having an opening in the center thereof; and
  - a converging member extending co-axially of said shaft from said first disc converging toward a point at least one half the distance to said second disc.
2. A rotary disc fluid pump according to claim 1, wherein said converging member has a conical surface and extends at least to an inner surface of said second disc.
3. A rotary disc fluid pump according to claim 1, wherein said conical member extends beyond said second disc.
4. A rotary disc fluid pump according to claim 3, wherein said wherein said conical member extends beyond said second disc to at least a third disc.
5. A rotary disc fluid pump according to claim 3, wherein said conical member is a frustum of a cone.
6. A rotary disc fluid pump according to claim 3, wherein said conical member is formed with a helical fin on an outer surface thereof.
7. A rotary disc fluid pump according to claim 1 wherein said conical member is a frustum of a cone.

8. A rotary disc fluid pump according to claim 7 wherein said conical member is formed  
2 with a helical fin on an outer surface thereof.

9. A rotary disc fluid pump according to claim 1 wherein said conical member is formed  
2 with a helical fin on an outer surface thereof.

10. A rotary disc fluid pump according to claim 1, wherein said converging member has a  
2 generally concave surface and extends at least to an inner surface of said second disc.

11. A rotary disc fluid pump according to claim 1, wherein said converging member has a  
2 generally convex surface and extends at least to an inner surface of said second disc.

12. A rotary disc pump for pumping fluid materials, comprising:  
2 a housing having a chamber defined by an inner and an outer side wall joined by a generally  
circular/peripheral wall with a generally coaxial inlet in said outer wall and a generally tangential  
4 outlet circular peripheral wall;  
an impeller mounted co-axially within said chamber and comprising a shaft mounted in said  
6 inner wall of said housing and having an outer end extending from said housing and an inner end  
within said chamber, at least a first circular disc mounted on the inner end of said shaft, and at least a  
8 second disc mounted to said first disc in axially spaced relation to said first disc and having a circular  
opening in the center thereof; and  
10 a conical member having a base at said first disc and extending co-axially of said shaft from  
said first disc at least half the distance to said second disc.

13. A rotary disc fluid pump according to claim 12, wherein said first disc and said second  
2 disc have conical opposing surfaces.

14. A rotary disc fluid pump according to claim 12, wherein said conical opposing surfaces  
2 have radially extending ribs.

15. A rotary disc fluid pump according to claim 12 wherein said rotor has an outer disc and  
2 said conical member extends at least to an inner surface of said outer disc.

16. An apparatus according to claim 15 wherein said conical member extends at least to  
2 an outer surface of said outer disc.

17. An apparatus according to claim 16 wherein said conical member extends beyond an  
2 outer surface of said outer disc.

18. A rotary disc fluid pump according to claim 16, wherein said conical member is formed  
2 with a helical fin on an outer surface thereof.

19. A rotary disc fluid pump according to claim 12, wherein said conical member is formed  
2 with a helical fin on an outer surface thereof.

20. An apparatus according to claim 19 wherein said conical member is a frustum of a  
2 cone.

21. An apparatus according to claim 12 wherein said conical member is a frustum of a  
2 cone.

22. A rotary disc fluid pump according to claim 12, wherein said conical member is formed  
2 with a plurality of radial blades on an outer surface thereof.